

REMARKS

Claims 1-32 remain pending in the application. It is proposed to add new claims 33-36 to the application without introduction of new matter. Entry of these amendments and favorable reconsideration in view of the following remarks are respectfully requested.

The indication that method claims 12, 13, 14, and 20 define allowable subject matter is noted with appreciation. In reviewing the claim set, Applicants have noticed that the application does not include apparatus claims that correspond to the claims considered by the Office to define allowable subject matter. Therefore, to help ensure that Applicants are claiming all the subject matter to which they are entitled, it is respectfully requested that the Office enter the new apparatus claims 33, 34, 35 and 36 which correspond to the respective (allowable) method claims 12, 13, 14, and 20. Because each of the new claims includes all of the features of its corresponding method claim, the Office would not be required to perform a new search, nor would new issues be raised.

Claims 1, 4-11, 16-19, 21-25, 27-30, and 32 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Tirola et al (US 20040076132 -- henceforth “Tirola”) in view of Wang (US 20060154633), and further in view of Jalloul et al (US 7,251,497 -- henceforth “Jalloul”). This rejection is respectfully traversed.

In supporting its rejection, the Office agrees that the combination of Tirola with Wang is insufficient to support the rejection at least because that combination fails to disclose or suggest “estimating the interference by determining a variance of symbols in at least two portions of the dedicated channel” (recited in each of independent claims 1, 25, and 30, and therefore also inherent in each of the related dependent claims 4-11, 27-29, and 32). The Office attempts to make up for the deficiencies of Tirola and Wang by relying on Jalloul. However, this reliance is unfounded at least because Jalloul is not valid prior art against any of Applicant’s claims. Jalloul was published on July 31, 2007 (June 30, 2005 if one considers the related US 2005/0143117), which is well after Applicants’ filing date, so if Jalloul is to be considered prior art against Applicants’ claims, it must be under 35 U.S.C. §102(e). However, Section 102(e) of the patent statutes requires that such prior art be “a patent granted on an application for patent by another filed in the United States *before* the invention by the applicant for patent.” (Emphasis added.) Jalloul fails to satisfy this requirement because, as far as Applicants are able to ascertain, Jalloul’s earliest U.S. filing date is December 31, 2003 which occurred after Applicants’ own November 4, 2003 filing date.

Therefore, Jalloul cannot be applied as prior art against any of Applicants' claims. As the Office has already acknowledged that the combination of Tirola and Wang is insufficient to support the rejection of claims 1, 4-11, 25, 27-29, 30, and 32, the rejection of these claims should be withdrawn.

As to independent claim 17 and its dependent claims 18-19 and 21-24, these are believed to be patentably distinguishable over the valid prior art of record at least because independent claim 17 defines:

A method of searching for an empty channelization code m in a terminal in a code division multiple access communication system, comprising the steps of:

- generating an initial interference estimate (I-estimate);
- setting a threshold based on the initial I-estimate;
- selecting a candidate empty channelization code m ;
- for the candidate empty channelization code m , forming an I-estimate;
- comparing the formed I-estimate to the threshold; and
- if the formed I-estimate exceeds the threshold, selecting another candidate empty channelization code and repeating the forming and comparing steps, otherwise identifying the candidate empty channelization code m as an empty channelization code.

It is noted that the Office acknowledges that Tirola fails to disclose any of these features, and relies solely on Wang in support of its rejection of this independent claim. The same is true with respect to dependent claims 18-19 and 22-24. Therefore, Applicants first submit that **the ground of rejection of this claim is improper**: Claims 17-19 and 21-24 appear to have been rejected as allegedly being **anticipated** by Wang (a Section 102 rejection), rather than being allegedly unpatentable over a combination of Tirola and Wang (a Section 103 obviousness rejection).

Moreover, neither Tirola nor Wang discloses the features defined by claim 17. The Office rightly acknowledges that Tirola is silent with respect to the subject matter of claim 17, but argues that "Wang in the same endeavor (CDMA system) discloses in figure 10, a

method which estimates the power of a desired channel using its channelization (fig. 10 and page 4, [0052]).”

Applicants fail to see the relevance of the Office’s argument, since it does not address any of the features defined in the body of claim 17. Independent claim 17 is directed to “A method of searching for an empty channelization code *m* in a terminal in a code division multiple access communication system.” Thus to anticipate (or render obvious) this claim, Wang should disclose the steps recited in claim 17, and it does not. At best, the cited portion of Wang discloses “Step S2 searches for and selects a low SF idle channelization code from the OVSF tree using information regarding occupied channelization codes.” Searching a tree of known information about which codes are occupied and which are not is clearly different from Applicant’s claimed steps that involve “generating an initial interference estimate (I-estimate); setting a threshold based on the initial I-estimate; selecting a candidate empty channelization code *m*; for the candidate empty channelization code *m*, forming an I-estimate; comparing the formed I-estimate to the threshold; and if the formed I-estimate exceeds the threshold, selecting another candidate empty channelization code and repeating the forming and comparing steps, otherwise identifying the candidate empty channelization code *m* as an empty channelization code.”

Moreover, it would not make technical sense for Wang to disclose or otherwise suggest Applicants’ claimed steps. Wang discloses a base station that performs uplink channel estimation. (See, e.g., Wang at page 1, paragraph 0006.) As expressly stated in paragraph 0043 of Wang, which codes are occupied and which are not “are known to the base station.” It is therefore completely unnecessary for the base station to go through a process of testing received signals to explore and find an empty channelization code.

By contrast, Applicants’ claimed methods and apparatuses are expressly stated as being for “estimating interference in a terminal” (emphasis added). Unlike a base station (which serves all the terminals in its cell), the terminal inherently knows only the codes that it is using; of relevance here is that the terminal does not have information about what codes other terminals may or may not be using. For this reason, Applicants’ have devised, and now claim, a technique that enables the terminal to test candidate channelization codes to find out whether they are in use or not (i.e., empty).

For at least the foregoing reasons, independent claim 17 and its dependent claims 18-19 and 21-24 are believed to be patentably distinguishable over any combination of Tirola and Wang.

In view of the foregoing, Applicants respectfully assert that each of claims 1, 4-11, 16, 17-19, 21-24, 25, 27-29, 30 and 32 is novel and nonobvious over the prior art of record regardless of whether those references are considered individually or in combination. It is therefore respectfully requested that the rejection of these claims under 35 U.S.C. §103(a) be withdrawn.

Claims 2-3, 15, 26, and 31 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Tirola in view of Wang and further in view of Jalloul as applied to claims 1, 25 and 30 above, and further in view of Jokinen et al. (US 6038238 -- henceforth “Jokinen”). This rejection is respectfully traversed.

As explained earlier, Jalloul is not valid prior art against Applicants’ claims, and therefore cannot be used to support the present rejections. Claims 2-3, 15, 26, and 31 variously depend from independent claims 1, 25, and 30, and are therefore patentably distinguishable over any combination of the remaining references, Tirola and Wang, for at least the reasons set forth above (e.g., that the Office has expressly acknowledged that Tirola and Wang taken alone fail to support the rejection). Jokinen fails to make up for the deficiencies of Tirola and Wang, so that any combination of these three would still lack at least:

- “estimating the interference by determining a variance of symbols in at least two portions of the dedicated channel”. (Emphasis added.)

Further, the Office acknowledges that Tirola and Wang fail to disclose determining whether the communication system is using discontinuous transmission (DTX), but relies on Jokinen as making up for this deficiency. In this respect, the Office argues that “Jokinen et al. ... discloses in (fig. 4), a method to realize discontinuous transmission (DTX) in a telecommunications network (col. 5, lines 20-36)” and that it would have been obvious “to have utilized the method of Jokinen et al in the method of Tirola et al as modified by Wang ... in order to determine whether the communication system is not using discontinuous transmission (DTX). The motivation to utilize the method of Jokinen et al in the method of Tirola et al as modified by Wang ... would be to reduce co-channel interference and its effect on the communication quality (col. 1, lines 16-18).”

It is respectfully asserted that the Office’s argument is not persuasive because it is technically inaccurate. If one were motivated to reduce co-channel interference in the

manner taught by Jokinen, one would use DTX. If combined with Wang, the combination would involve using DTX for co-channel interference reduction (as taught by Jokinen) while at the same time performing interference estimation in the manner taught by Wang.

However, Applicants' claims do not define using DTX for interference estimation or any other reason. Rather, they qualify the claimed method by stating that "determining the variance of symbols in at least two portions of the dedicated channel is performed only after first determining that the communication system is *not* using discontinuous transmission (DTX)." (Emphasis added.) Support for this feature can be found in the specification at, for example, Figure 4, steps 413 and 417 (in which both DPCCH and DPDCH are used only when DTX mode is not in use).

Jokinen is silent with respect to interference estimation, and therefore cannot suggest a terminal basing its interference estimation technique on whether DTX is in use. Tirola is silent with respect to this feature because Tirola uses only a single portion of the channel (i.e., pilot symbols) in its technique, and therefore does not need to detect whether symbols are present in another portion. (Pilot symbols are always present regardless of whether DTX is in use.) Wang's interference technique involving unused channelization codes similarly has no need for knowledge of whether DTX is in use. Thus, there is no teaching or suggestion to combine or modify any of the prior art to arrive at Applicants' claimed invention.

For at least the foregoing reasons, it is respectfully asserted that the subject matter defined by claims 2-3, 15, 26, and 31 is patentably distinguishable over the prior art of record. Accordingly, it is respectfully requested that the rejection of these claims under 35 U.S.C. §103(a) be withdrawn.

The application is believed to be in condition for allowance. Entry of the proposed amendments and prompt notice of allowance are respectfully requested.

Respectfully submitted,
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